Trend Study 11B-2-00

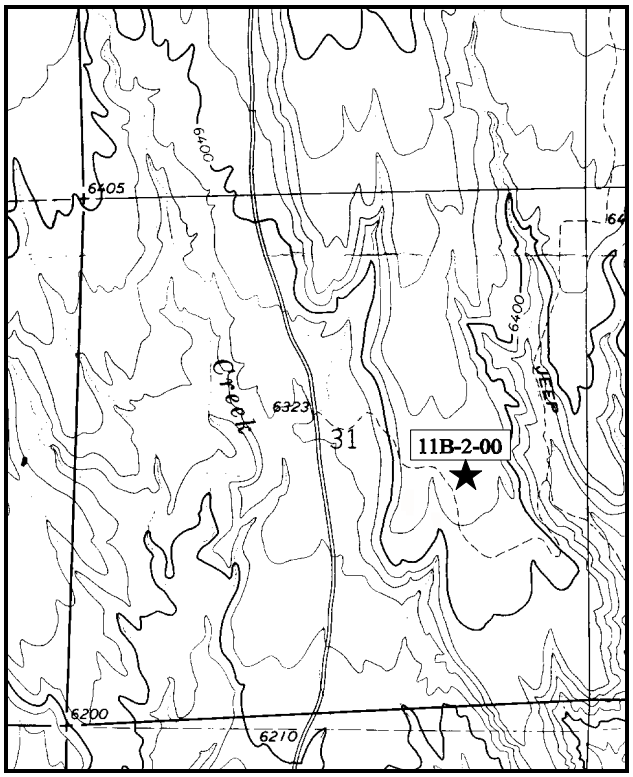
Study site name: Airport Bench . Range type: Chained, Cabled, Seeded P-J .

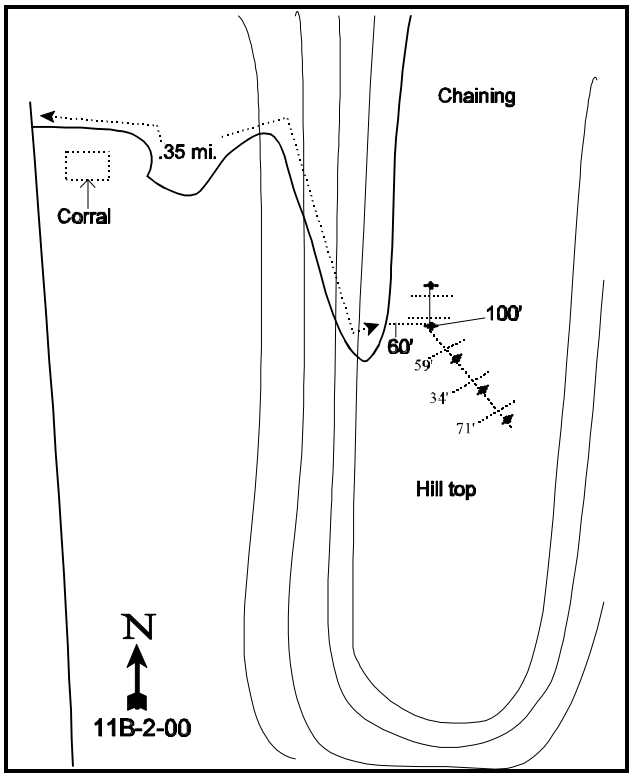
Compass bearing: frequency baseline 170°M.

Footmark (first frame placement) 5 feet, footmarks (frequency belts) line 1 (11 & 95ft), line 2 (59ft), line 3 (34ft), line 4 (71ft). Belt 2 line 3 rebar @ 1ft.

LOCATION DESCRIPTION

Turn east on the Airport Road at the southeast end of Price and go 3.15 miles to the airport. After another 0.9 miles on the main road, you cross under a power line. Continue 0.45 miles to an intersection. Stay left. Go another 1.9 miles and turn right onto a dirt road just beyond a corral. Drive up this rocky road 0.35 miles to a fork on top of the bench. Bear left and go approximately 100 feet. The transect is in the chaining on the right side of the road. The 100-foot end of the baseline is 60 feet east of the road. All transect stakes are 1- to 2-foot tall fence posts.





Map Name: Deadman Canyon

Diagrammatic Sketch

Township 13S , Range llE , Section 31

UTM. 4389026.585 N, 523587.116 E

DISCUSSION

Trend Study No. 11B-2 (32-2)

The Airport Bench transect is located approximately two miles south of Deadman (11B-1) and shares many similarities. This bench was also part of the 1965 chaining and seeding project. As part of the same grazing allotment, management is similar except cattle use this area at a different time each year. Vegetative composition and condition parallels that of the Deadman study site except for the much higher cover value for pinyon-juniper on Deadman, 13% vs 9%. The site is slightly lower in elevation (6,400 feet). It is nearly level, although the bench top does slope slightly southward. As with site 11B-1, human pressure is high because of its proximity and easy access to Price. Evidence of human activity includes wood cutting, ORV tracks, abundant trashy litter, and shotgun shells were found. Deer pellet groups are common, but no antler drops or winter-killed deer were found during any reading. Quadrat frequency of deer pellet groups was high in 1994 at 60%, declining to 42% by 2000. Pellet group transect data taken parallel to the study site baseline in 2000 estimated 54 deer use days/acre (133 ddu/ha).

The soil is compacted, but appears to be fairly deep with an effective rooting depth estimated at 15 inches. It has a sandy clay loam texture with rock-pavement cover that has ranged from 13% to 15%. Rocks are also common throughout the soil profile. Soil phosphorous could be limiting at 6.3 ppm, where values less than 10 ppm may limit normal plant growth and development. Vegetative cover from crested wheatgrass combined with level terrain tends to limit erosion.

As previously mentioned, vegetative composition is quite similar to study 11B-1 but desirable browse forage is more limited here. Utah Juniper currently (‘00) provides 82% of the total browse cover. Trees average 8-10 feet in height. Point-quarter data from 2000 estimate 211 juniper and 97 pinyon trees/acre with an average diameter of 3.2 and 3.6 inches respectively. These trees also appear to have been released by the chaining since only 10% of the junipers sampled were tipped over surviving chained trees.

True mountain mahogany appeared fairly abundant in 1986 at an estimated 199 plants/acre. These were moderately hedged but vigorous. With the much larger sample size now used this clumped population was estimated at only 40 plants/acre in 1994 and no plants were encountered along the density strips in 2000. There are some tall mahogany plants scattered throughout the site which appear to be heavily hedged, but much of the forage is unavailable due to height. Bitterbrush (seeded) and green Ephedra are uncommon. Most of the bitterbrush seen in the surrounding area were heavily hedged in 2000. Use of ephedra is mostly light to moderate. The only abundant shrub on the site is broom snakeweed which has increased from 160 plants/acre in 1994 to 3,320 in 2000.

Crested wheatgrass dominates the herbaceous understory by providing 90% of the total grass cover in 1994, increasing to 99% by 2000. Cover of crested wheatgrass also increased from 6% in 1994 to 16% in 2000. There is also some Indian ricegrass and mutton bluegrass scattered throughout the understory. Perennial forbs are not very common and do not produce significant forage. However, the seeded alfalfa is still found on the site and it appears to be utilized where available. Most of the surviving plants are now growing under the protective cover of shrubs.

1986 APPARENT TREND ASSESSMENT

Although the site in many ways is similar to the Deadman transect, overall this area appears to be in a slightly worse condition with a downward trend. There are fewer desirable shrubs, mainly true mountain mahogany. Juniper and pinyon appear to be rapidly increasing. The lack of shrub reproduction may indicate a declining population due to increased competition with the pinyon and juniper. Mean annual precipitation would be less

at this lower site, as a result, the trees would have a greater competitive influence on understory composition. The soil trend appears stable.

1994 TREND ASSESSMENT

Comparing the data with 1986, the soil trend is down, as litter cover has declined and percent bare ground has increased substantially. This basic trend has been noted throughout the state because of the prolonged drought. The browse trend is stable to declining and in poor condition because of the low numbers of useful shrubs present. When the young pinyon and juniper trees become more mature they will have a strong negative effect on the understory browse. A treatment with a roller chopper would be timely and cost effective at this time. The herbaceous understory trend is down with significant decreases in crested wheatgrass nested frequency and a very high occurrence of annual Russian thistle throughout the understory. Together they make up 85% of the total herbaceous understory cover.

TREND ASSESSMENT
soil - down (1)
browse - stable to declining with little useful browse present (2)
herbaceous understory - down (1)

2000 TREND ASSESSMENT

Trend for soil appears to be slightly improved. Relative percent cover of bare ground has declined slightly while cover of litter and vegetation have increased. In addition, the dominant crested wheatgrass has increased significantly in nested frequency and it's cover has more than doubled. Erosion is minimal due to the level terrain combined with the abundant herbaceous cover. Trend for browse is down. The browse composition is poor with few useful shrubs present. Juniper currently provides 82% of the total browse cover and juniper and pinyon have increased in size and density since 1994. Cover has increased from 2% in 1994 to 9% in 2000. Overhead canopy cover is currently 4%. Broom snakeweed has increased in density from 160 plants/acre in 1994 to 3,320 by 2000. Trend for the herbaceous understory is up slightly due to an increase in the nested frequency of crested wheatgrass which currently provides 98% of the herbaceous cover. Sum of nested frequency of perennial forbs has declined. However, perennial forbs are limited and produce little useful forage.

TREND ASSESSMENT
soil - up slightly (4)
browse - down and in poor condition (1)
herbaceous understory - up slightly (4)

HERBACEOUS TRENDS --
Herd unit 11B, Study no: 2

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %	
		'86	'94	'00	'86	'94	'00	'94	'00
G	Agropyron cristatum	$_{b}$302	$_{a}$240	$_{b}$298	98	88	98	6.41	16.37
G	Oryzopsis hymenoides	$_{a}$16	$_{b}$42	$_{ab}$28	7	16	12	.72	.11
G	Poa fendleriana	$_{b}$6	$_{a}$-	$_{a}$-	3	-	-	-	-
Total for Annual Grasses		0	0	0	0	0	0	0	0
Total for Perennial Grasses		324	282	326	108	104	110	7.13	16.48
Total for Grasses		324	282	326	108	104	110	7.13	16.48
F	Cryptantha fulvocanescens	8	17	9	5	9	5	.21	.07
F	Descurainia pinnata (a)	-	$_{b}$11	$_{a}$-	-	6	-	.03	-
F	Eriogonum cernuum (a)	-	-	1	-	-	1	-	.00
F	Eriogonum ovalifolium	$_{a}$-	$_{b}$8	$_{a}$1	-	4	1	.07	.00
F	Eriogonum umbellatum	$_{b}$19	$_{b}$17	$_{a}$-	12	6	-	.03	-
F	Euphorbia spp.	$_{a}$10	$_{b}$24	$_{a}$9	5	13	4	.26	.04
F	Ipomopsis aggregata	-	1	-	-	1	-	.00	-
F	Lesquerella spp.	$_{a}$-	$_{ab}$6	$_{b}$14	-	2	6	.03	.03
F	Lithospermum incisum	2	7	4	1	5	2	.08	.03
F	Machaeranthera canescens	-	4	3	-	2	1	.04	.00
F	Medicago sativa	$_{b}$11	$_{ab}$9	$_{a}$2	4	4	1	.02	.03
F	Penstemon cyanocaulis	$_{a}$2	$_{b}$50	$_{a}$2	1	23	2	.34	.01
F	Salsola iberica (a)	$_{a}$-	$_{b}$263	$_{a}$4	-	84	1	5.12	.00
Total for Annual Forbs		0	274	5	0	90	2	5.15	0.00
Total for Perennial Forbs		52	143	44	28	69	22	1.10	0.23
Total for Forbs		52	417	49	28	159	24	6.26	0.24

Values with different subscript letters are significantly different at % = 0.10 (annuals excluded)

BROWSE TRENDS --
Herd unit 11B, Study no: 2

Type	Species	Strip Frequency		Average Cover %	
		'94	'00	'94	'00
B	Atriplex canescens	0	1	-	.15
B	Cercocarpus montanus	2	0	.18	-
B	Chrysothamnus nauseosus	0	1	-	-
B	Chrysothamnus viscidiflorus viscidiflorus	0	1	-	-
B	Ephedra viridis	2	2	-	.00
B	Gutierrezia sarothrae	2	31	-	.73
B	Juniperus osteosperma	0	11	1.77	8.03

Type	Species	Strip Frequency '94	Strip Frequency '00	Average Cover % '94	Average Cover % '00
B	Opuntia spp	1	1	-	-
B	Pinus edulis	0	1	-	.88
Total for Browse		7	49	1.95	9.80

CANOPY COVER --
Herd unit 11B, Study no: 2

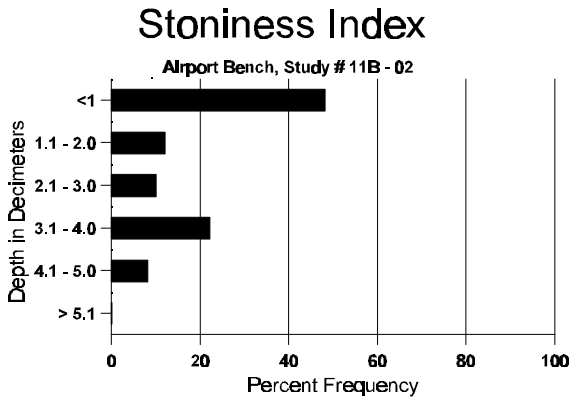
Species	Percent Cover '00
Juniperus osteosperma	4

BASIC COVER --
Herd unit 11B, Study no: 2

Cover Type	Nested Frequency '94	Nested Frequency '00	Average Cover % '86	Average Cover % '94	Average Cover % '00
Vegetation	338	310	14.00	14.85	26.38
Rock	308	131	5.25	7.11	3.84
Pavement	355	320	10.25	5.91	11.58
Litter	394	371	51.25	28.81	45.04
Cryptogams	-	8	0	0	.04
Bare Ground	347	298	19.25	24.90	23.78

SOIL ANALYSIS DATA --
Herd Unit 11B, Study # 2, Study Name: Airport Bench

Effective rooting depth (inches)	Temp °F (depth)	pH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
15.01	52.4 (16.22)	7.5	54.0	22.0	24.0	3.9	6.3	147.2	0.7



PELLET GROUP FREQUENCY --
Herd unit 11B, Study no: 2

Type	Quadrat Frequency		Pellet Transect	
			Pellet Groups per Acre	Days Use per Acre (ha)
	'94	'00	'00	'00
Rabbit	58	30	218	N/A
Elk	3	-	-	-
Deer	60	42	705	55 (134)
Cattle	6	5	9	1 (2)

BROWSE CHARACTERISTICS --
Herd unit 11B, Study no: 2

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Atriplex canescens																		
M	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	00	-	-	-	-	1	-	-	-	-	1	-	-	-	20	22	46	1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'86	00%	00%	00%	
'94	00%	00%	00%	
'00	100%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'86	0	Dec:		-
'94	0			-
'00	20			-

Cercocarpus montanus																		
Y	86	-	1	-	-	-	-	-	-	-	1	-	-	-	66			1
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	86	-	2	-	-	-	-	-	-	-	2	-	-	-	133	63	39	2
	94	2	-	-	-	-	-	-	-	-	2	-	-	-	40	46	45	2
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	60	71	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'86	100%	00%	00%	-80%
'94	00%	00%	00%	
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)			
'86	199	Dec:	-
'94	40		-
'00	0		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Chrysothamnus nauseosus																		
S	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
Y	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	4	-	-	-	-	-	-	-	-	4	-	-	-	80			4
M	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	22	21	0
X	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor
'86	00%	00%	00%
'94	00%	00%	00%
'00	00%	00%	00%

%Change

Total Plants/Acre (excluding Dead & Seedlings)				
	'86	0	Dec:	-
	'94	0		-
	'00	80		-

Chrysothamnus viscidiflorus viscidiflorus

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
M	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20	5	7	1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor
'86	00%	00%	00%
'94	00%	00%	00%
'00	00%	00%	00%

%Change

Total Plants/Acre (excluding Dead & Seedlings)				
	'86	0	Dec:	-
	'94	0		-
	'00	20		-

Echinocereus spp.

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
M	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	6	18	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor
'86	00%	00%	00%
'94	00%	00%	00%
'00	00%	00%	00%

%Change

Total Plants/Acre (excluding Dead & Seedlings)				
	'86	0	Dec:	-
	'94	0		-
	'00	0		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Ephedra viridis																		
Y	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	94	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	94	3	-	-	-	-	-	-	-	-	3	-	-	-	60	39	59	3
	00	-	1	-	3	-	-	-	-	-	4	-	-	-	80	32	48	4
D	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	94	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'86	00%	00%	00%	
'94	00%	00%	00%	-20%
'00	25%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'86	0	Dec:		0%
'94	100			20%
'00	80			0%

Gutierrezia sarothrae

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
S	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	10	-	-	-	-	-	-	-	-	10	-	-	-	200			10
Y	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
M	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	94	4	-	-	-	-	-	-	-	-	4	-	-	-	80	9	10	4
	00	158	-	-	-	-	-	-	-	-	158	-	-	-	3160	5	6	158
D	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	94	4	-	-	-	-	-	-	-	-	4	-	-	-	80			4
	00	7	-	-	-	-	-	-	-	-	2	-	-	5	140			7
X	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	300			15

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'86	00%	00%	00%	
'94	00%	00%	00%	+95%
'00	00%	00%	03%	

Total Plants/Acre (excluding Dead & Seedlings)				
'86	0	Dec:		0%
'94	160			50%
'00	3320			4%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Juniperus osteosperma																		
Y	86	2	-	-	-	-	-	-	-	-	2	-	-	-	133			2
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	3	-	-	2	-	-	-	-	-	4	-	1	-	100			5
M	86	1	-	-	-	-	-	-	-	-	1	-	-	-	66	31	30	1
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	00	3	-	-	1	-	-	2	-	-	6	-	-	-	120	-	-	6
D	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor
'86	00%	00%	00%
'94	00%	00%	00%
'00	00%	00%	08%

%Change

Total Plants/Acre (excluding Dead & Seedlings)				
	'86	199	Dec:	0%
	'94	0		0%
	'00	240		8%

Opuntia spp.																		
M	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	94	1	-	-	-	-	-	-	-	-	1	-	-	-	20	4	13	1
	00	2	-	-	-	-	-	-	-	-	2	-	-	-	40	4	18	2

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor
'86	00%	00%	00%
'94	00%	00%	00%
'00	00%	00%	00%

%Change

+50%

Total Plants/Acre (excluding Dead & Seedlings)				
	'86	0	Dec:	-
	'94	20		-
	'00	40		-

Pinus edulis																		
Y	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
M	86	1	-	-	-	-	-	-	-	-	1	-	-	-	66	87	70	1
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor
'86	00%	00%	00%
'94	00%	00%	00%
'00	00%	00%	00%

%Change

Total Plants/Acre (excluding Dead & Seedlings)				
	'86	66	Dec:	-
	'94	0		-
	'00	20		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Purshia tridentata																		
M	86	2	1	-	-	-	-	-	-	-	3	-	-	-	200	31	45	3
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0	26	47	0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	24	69	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'86	33%	00%	00%	
'94	00%	00%	00%	
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'86	200	Dec:	-
	'94	0		-
	'00	0		-